yantras: mechanical productions

Maharshi Bharadwaja is an august name in the pantheon of Hindu Sages who recorded Indian civilization, in the spiritual, intellectual, and scientific fields in the hoary past. The rishis transmitted knowledge from mouth to mouth and from ear to ear, for long eras. Written transmission through birch-backs or palm leaves or home made paper, are from this side of a thousand years. The word "yantra" is derived from the root yam, to control, and has been freely used in ancient India for any contrivance. Mechanical skills had produced in ancient India many accessories for scientific activities, such as surgical instruments in medicine, the pakayantras or laboratory equipment in medicine, Rasayana, and the astronomical yantras described in Jyotisa works. These belong to a different category. In the Mahabharata we hear of the Matsya-yantra or the revolving wheel with a fish which Arjuna had to shoot in order to win Draupadi in the svayamvara.

More interesting references are made by Valmiki to yantras on the field of battle, the continuity of which tradition we see later in the Arthasastra of Kautilya. The fortifications include equipment in the form of yantras. In Ayodhya 100.53, in the Kaccita-sarga, while enquiring about measures of defense, Rama asks Bharata whether the fort is equipped with yantras. Lanka, as a city built by Maya, is naturally more full of the yantras. The city, personified as a lady, is called yantra-agara-stani, informing us of a special chamber filled with yantras. (Sundara 3. 18). The Arthasastra of Kautilya is one of the books of culture which throws a flood of light on the particular epochs in which they arose. This work of 300 B.C.E. being a treatise on statecraft, speaks of yantras in connection mainly with battles, but also with architecture to some extent. An early work, a theoretical treatise and a text of great reputation, the Arthasastra forms our most valuable document on the subject of yantras.

And, as early as the Bhagavad Gita, the machine became an apt simile for man being a tool in the hands of the Almighty that sits in man's heart and by His mystic power makes man not only move but also delude himself into the notion of his being a free or competent agent.

"To deny to Babylon, to Egypt and to India, their part in the development of science and scientific thinking is to defy the testimony of the ancients, supported by the discovery of the modern authorities. - **L. C. Karpinski**

"Thus we see that India's marvels were not always false." - **Lynn Thorndike**.

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The following machines are to be made of a metal called Veera. An alloy formed by melting and fusing the three metals Kshwinka, Arjunika and Kanta (magnet), in three, five and nine parts respectively, is called Veeraloha or a metal namely Veera. When it undergoes shastraic processes, it cannot be destroyed by fire, air, water, electricity, cannon, gun-powder or the like. It will then be very strong, light, and of golden color. The metal is specially meant for Machines.

Panchamukha Yantra

A machine of this name contains doors in east, south, west, north and top. Weighs 170 Ratals. Carries one thousand Ratals. By the help of electricity it can travel five Kroshas per hour. It is used as conveyance for men and in wars. Since the machine is conducted by the power of a spirit called Gaja it is named as Gajaakarshana Panchamukha Ratha.

Mrugaakasrshana Yantra

These are the machines drawn by such animals as oxen, asses, horses, camels, elephants and so on.

Chaturmukha Ratha Yantra

This machine has faces or openings on four sides. Weighs 120 Ratals. It can be conducted with any oil, preferably that of coconut shells, or with the help of electricity. Travels six Kroshas per hour. Used for traveling, wars, and transporting things.

Trimukha Ratha Yantra

This Machine weighs 116 Ratals. It has three doors, downwards, upwards and on one side. It can carry a weight of 600 Ratals. It is conducted with the help of oil extracted from knotted root of Simha-Krantha, and from that extracted out of the stalks of a kind of grass. If such oils are not available, electricity may be made use of. It is used for the purposes that the above machine, viz. Cahkra-mukha-Ratha Yantra is used.

Dwimukha Yantra

It weights 80 Ratals. Doors to east and west. Conducted by a wheel fitted with screws. Travels three Koshas per hour. Can carry a weight of three hundred Ratals. Used for the above purposes.

Ekamukha Ratha Yantra

This machine has only one door. Weighs 48 Ratals. Carries two hundred Ratals of weight. Travels with the help of oil extracted from the seeds of Kancha-Thoola or Sovlaalika or by electricity: speed 1 Keosha per hour. Used for the above purposes.

Simhaasya Ratha Yantra

This machine presents a front of a lion’s appearance. Possesses two doors. 75 Ratals in weight. Carries a weight of 50 Ratals. It can travel both on land and air. It has the quality of expanding and contracting. Used for the above purposes.

Vyaaghraasya Ratha Yantra

This is modeled after a tiger. Possesses wings. Weighs 64 Ratals. Carries 200 Ratals of weight. It travels in air expanding its wings with electric power, but contracting its wings with steam power. It is used for the above purposes.



Dolamukha Yantra

This is modeled after a litter. Contains two doors. Weights 50 Ratals. Carries 148 Ratals. Travels three Kroshas per hour. Conducted with the help of the electricity and an oil, viz Shilyusha extracted from wine.

Kurmamukha Ratha Yantra

This is modeled after a tortoise. Contains small doors. Weighs 32 Ratals. Used for only spying.

Ayah – Prasaarana Yantra

Out of those that are conducted by electricity this is one which travels on iron line spread on earth. It may be constructed to contain from 40 to 80 wheels. It resembles the railway train somewhat, weighs 4000 Ratals. Carries twenty-five thousand Ratals. Travels three Kroshas per hour with the power of electricity. It is used in transporting men and goods from place to place.

Panchamukee Yantra

This machine has five faces. Weighs 115 Ratals. Carries twelve thousand Ratals. Carries twelve thousand Ratals. Has another machine which enables the five doors to open or shut. Conducted with electricity. Speed four Kroshas per hour. Used for the above purposes.

Eka Chakra Yantra

This contains only one wheel. It is modeled after a trap. Weights 105 Ratals. Carries 800 Ratals. It is given motion and kept in motion by its wheels being worked by bellows. Travels three Kroshas per hour.

Trimukhi Yantram

This machine has three faces. Contains three compartments which can be separated. Weights one thousand Ratals. Travels on water. The three compartments are so arrayed that it can travel with the second compartment if the first is damaged, and if the second also gets damaged, the third compartment can safeguard the contents, by separating them as may be necessary. Should the topmost apartment be in a dangerous predicament, it can rise into heavens and travel in the air. Uses as above.

Jrumbhala Yantra

This machine has the door below. It is modeled after a shut umbrella. The covering is made of thick water-proof cloth which is manufactured out of the juice of the five trees or Pachavarga Kasheeree Vruksha. Weighs 42 Ratals. Carries 300 Ratals. It can expand into the shape of a tent by working a screw inside. So also it can contract into the former shape by working another screw. Appears like a flag. Used for secret wanderers like spying. With electric power or with the help of its wheels turned by bellows it can travel six Kroshas per hour.

Goodha Gamana Yantra

This machine can accommodate only three persons. Weighs half a maund. Appears like an ordinary tower. Contains five keys. Can travel on land as well as air. Its motion is almost invisble. Can travel eight Kroshas per hour with the power of an oil called Sinjurika. Used for secret travels.

Wyrajika Yantra

This machine is made of glasses of abhraka or mica. There are sixteen doors. Weights three Ratals. Carries five Ratals. Appears like a sparking light and as such none can know that it is a machine. Should anyone go near it, the sparkling light produced by turning an inner key will kill him. Can travel on water as well as on land. With the electric power of solar rays it can travel twelve Kroshas per hour. Used for journeys, in wars and in dispatching money.

Indranee Yantra

This machine is constructed with paper, manufactured out of grass belonging to Maunjavarga; the 3^{rd}, 9^{th}, 11^{th}, 22^{nd}, 30^{th} and 42^{nd} classes of grass are known as Pishangamunja, Pingala Munja, Rajjumnunja and son on. This machine cannot be destroyed by fire or water. It is exceedingly light and strong. It can travel 15 Kroshas per hour with the help of wind-worked wheels. Carries 100 Ratals.

Vishwaavasu Yantra

This machine has two doors. Weighs 148 Ratals. Carries three thousand Ratals. With the help of steam it travels two and a half Kroshas per hour. It can go both forward and backward. It can be expanded or contracted. Contains seven keys. Used for the above purposes.

Sourambhaka Yantra

This machine has three storeys. There are secret seats for 400 people to sit in each of the three storeys. The seats are not ordinarily visible. The storeys can alone be perceived. Weights 230 Ratals. Carries thirty-six thousand Ratals. It travels with the help of electricity or steam, or with the help of spirits of seventh kind of wine. Can go 32 Kroshas per hour. Useful in carrying men and things in warfare.

Sphotanee Yantram

This machine has only one door, weighs 50 Ratals. Carries 200 Ratals. Sails on water. Just like a bubble of water, sometimes it can rise above water and at times it can dive underneath water. Moves with the power of steam or of spirits of Kanajala Kshaara. Travels four Kroshas per hour. Used by marine spies.



Kamatha Yantram

This is modeled after a tortoise. Weights 500 Ratals. Carries eight thousand Ratals. Contains two doors. Travels under the surface of water. Used for the above purposes.

Parvathee Yantram

This is modeled after a lotus. Contains four doors. Weighs 69 Ratals. Carries 800 Ratals. A pole is fixed in the middle to contain keys inside to expand and contract the machine just like a lotus opens and shuts. With the help of the power of steam or electricity it cant travel 24 Kroshas per hour. Used in voyages to distant islands.

Thaaraamuckha Yantram

This contains a face of seven keys, sparkling like stars. Twelve doors. Weights two thousand Ratals. Carries twenty-five thousand Ratals. Out of the seven keys, if the first is pressed, a melodious music

accompanied with every kind of musical instrument will be heard by those that are inside: if the second is pressed, dramatic scenery and action will be visible: by pressing the third, a stream of fresh water flows amidst the occupants, so that they may make use of water as they please: by pressing the fourth, plates with flowers, scents, plantains, camphor etc. will be ready before the occupants so that they may worship God: by pressing the fifth, plates of excellent food will be ready before them; while they are taking their dinner, the plates turn round through wires: by pressing the sixth: by pressing the seventh beds will be ready for all. Should the keys be kept as they were everything will vanish. With the help of steam or electricity it can travel four Kroshas per hour. Used for the above purposes.

Rohinee Yantram

This is modeled after a hollow bamboo and is of bamboo color. Weighs three thousand Ratals. Carries fifty thousand Ratals. Contains five hundred compartments in which gun-powder, bullets, weapons etc. can be preserved. Though fire breaks out nothing will be burnt or damaged, because the fire is suppressed by the nature of the metal with which it is composed. With the help of steam or electricity, it can run six kroshas per hour. It is used chiefly in wars.

Raakaasya Yantram

From the machine a glorious light will flow out just like moon-light once in three hours. This light illuminates a distance of sixty four Kroshas by which everything that lies in its range will be made clearly visible. Weights one ratal. In the machine there is a wheel turning to right round and round just like the Sun. Can travel on land, water and in air. Useful in finding out objects from afar off. With the help of spirits of sixteenth kind of wine it can travel four Kroshas per hour on land, eight kroshas on water and twelve Kroshas in air.

Chandramukha Yantram

This machine has a front like the moon’s disk: it is dark in the middle and bright all round. Weighs 400 Ratals. Contains sixteen doors. Carries sixteen thousand ratals. Contains five storeys and sixty-eight cylinders. These cylinders are useful in filling the five kinds of smokes, the seven powers, thirty-two kinds of powders and forty-eight kinds of gas. When they are in those cylinders no harm is done to them. This travels in paths dug out inside the earth. Travels with the help of spirits of 13th quality of wine. Speed sixteen kroshas per hour. Used in wars.

Anthaschakra Ratham

This is modeled after the crooked rod of a litter. This rod, resembling the two angularly bent rods of an oil mill, will be turning round and round always. There are thirty two screwed wheels. This machine must be fixed to the earth. It is used in transporting elephants, camels, horses, men, conveyances and son, or binging them near from a distance. This can be done by working at the screws inside. This must be fixed in the fitth circle of the warfield.

Panchanaala Yantram

This is fitted by joining five cylinders. There are distillery machines in each of these cylinders. These distilleries are used in manufacturing not only oils, spirits, etc. but also smokes, powders and so on. Weighs 230 Ratals. Travels three Kroshas per hour with the help of spirits of 9th class of wine.

Thanthreemukha Yantram

The front of this machine appears like a trap of wires. Inside the machine there is a magnetic wheel in the center. Behind this, there are exact representations of lions, tigers and other fierce animals all made of wires. In front there is a magnifying glass of 103 rd class. By working at the keys, these iron lions, tigers and so on can be made to roar and pounce upon people that come near it. By doing so, none can go near it. Weights 80 Ratals. Carries thousand Ratals. With the help of the powers of spirits of the third class wine, it can travel four kroshas per hour. Useful in wars.

Vegineee Yantram

This is modeled after an umbrella. It can run very fast by turning the screws at the junction of wheels. Can accommodate only three persons. Travels 8 kroshas per hour.

Shaktyudgama Yantram

This is a machine which spreads the electricity in sky. It has five storeys. Contains big glass vessels (containers) in each of them. In the first storey, the glass vessels will be filled with tar mixed with coal. In the second, the glass vessels will be filled with sea-foam or lather with the extract of tin. In the vessels of the third storey, sulpjur with the oil of the seeds of Visha mushti will be filled. Those of the 4^{th}, will be filled with the five essences of oils of the Pranaksharas. The five balls along with mercury, are fitted in those of the fifth. Wires from these five vessels are united as per shastraic principles. The vessels of the first storey must be filled with electricity and through this the vessels of other storeys must be filled. Through this it can spread in the sky. The machine weighs 32 Ratals. Used in constructing airplanes.

Mandalaavartha Yantram

This is modeled after a spinning top. Contains six faces and sixty-four screws inside. Weighs 68 Ratals. Carries eight thousand Ratals. Like a top it turns round the armies and crowds of people, round and round. It can turn round thrice, a distance of two kroshas in an hour, with the help of electricity and spirit of eleventh of class of wine. Useful in wars and in mutinies of people.

Ghoshanee Yantram

This is modeled after an immense serpent. Contains three coverings and 24 faces. It is filled with electricity. Contains also 148 cylindrical apartments to stock poisonous gas. By working at the inner screws, it can produce a noise equal to 32 thunderbolts. Emits poisonous gas as it travels. The sound thus produced will be heard for a distance of 14 ¼ miles. People near it die of the mortal effects of the deafening noise and poisonous gas. Those who are beyond eight kroshas of it will swoon. Weighs 116 Ratals. Carries six thousand Ratals. Can travel six kroshas per hour, with the help of electricity and spirits of 13^{th} kind of wine.



Ubhayamukha Yantram

This machine possesses the same symmetry on either side. Contains sixty-four small holes or doors on either side. Contains a fresh water stream inside. Above that stream, there flows another stream of tar. In the middle there are oils belonging to seven varieties. Contains 71 keys inside. By working at these keys, the poisonous gases, powers or anything of the kind that is injurious to lives, will be swept off in the range of twelve miles (roughly) around the machine and purifies the atmosphere. Weighs 48 Ratals. Carries 108 Ratals. Travels five Kroshas per hour with the help of electricity or spirits of 27^{th} class of wine. Use for purifying atmosphere whenever and wherever necessary.

Thridala Yantram

This is modeled after a three-leafed Bilwa patra…. Having three compartments. The first is square, the second is triangular, and the third is a hexagon in shape. Each of these compartments has two doors. Each compartment is provided with Peshanee Yantras. A Peshanee Yantra is one which grinds grain such as wheat into powder. Always filled with flour. This machine is conducted by electricity.

Thrikuta Yantram

This machine has two towers, like the peaks of a mountain. Each of these towers is one hundred (bahu) or yards in height. Each of the towers contains 32 keys inside. There are cylinders at every key. Above the towers there are flags and wheels. In front there are instruments to measure the cold. Indicates the weather, wind, sun-light, rain, thunderbolt, fall of stars and other future phenomena.

Thripeetha Yantram

This machine contains three bases. In the first, there is a machine having three heads like the elephant's, but possessing two trunks in each head. In the second there is a three-headed instrument, each of the heads having two trunks of Vyali animal. In the third there is an instrument which has three heads, each of which has the appearance of a rhinoceros with tusks. They can be fitted together or separated as required. The first of these Yantras can stop a stream of water, suck up water of the stream and thus change the direction of the stream. The second can tear mountain asunder and thus create passage. The third can bore a hole in earth, suck up water from down below, and jet the same out through the tusks above its head. Weighs six thousand Ratals. Carries 80 Ratals. Travels and works by the help of steam, electricity and spirits of 23rd class of wine. This machine is used in constructing roads in water and bridges, and in piercing tunnels across mountains and rocks.

Vishwamukha Yantram

This is a very spacious machine. In it there are twelve cylinders containing magnifying glasses. These cylinders are very big and they are fitted that they can be turned into any direction as may be necessary. Weighs 1800 Ratals. Carries forty thousand Ratals. There are two stories in it, which can be separated or joined together with the help of keys. Travels twelve Yojanas with the help of spirits of 32nd quality, steam or electricity. The upper storey can be separated and can be soared into heavens. By fixing the cylinders to it in the sky an area of 24 Yojanas with forests, countries, seas, cities etc become clearly visible, and a picture/photo of the same can be obtained. Used in traveling and so on.

Ghantaakaara Yantram

This machine appears as though seven almirahs are fixed together. Various kinds of wires, the essence or dravaka of the 16th kind of magnet, and many other dravakas are filled in it. There are two bells of bell-metal or white brass in each of these almirahs, and they are so fitted as to produce a terribly alarming sound just like the alarm of a clock. By the waves produced news of the world at large can be learned. Used in gathering information and in pictures.

Vishthrithaasya Yantram

The machine contains a widely open mouth. Weighs 76 Ratals. Carries 120 Ratals. In front of this machine there are five keys appearing as turrets. In the first turret there is a vessel of Chandra Kantha stone of the sixth class. As soon as the moon rises, water oozes in this stone vessel and it is filled. The same water is used by the men in the machine to drink. The other turrets attract the powers of cloud, stars and so on. Travels three Yojanas per hour with the help of spirits of the 14th class or electricity. Used in traveling. Etc.

Kravyaada Yantram

This machine contains three faces. Weighs a hundred Ratals. Carries ten thousand Ratals. With the help of steam it can travel nine Yojanas per hour. Used in traveling and in carrying goods.

Shankhamukha Yantram

A machine containing a five faced boring instrument and resembling a conch shell is called Shankha

mukha Yantram. There are keys to expand or contract the machine whenever or wherever necessary. Weighs a thousand Ratals. Used in constructing wells, digging, deep pits or boring holes in mines. It can dig 213 bahus or yards in an hour.

Used also for the purposes contained in the description.

Gomukha Yantram

This is modeled after the face of a cow. Weighs 80 Ratals. Carries 700 Ratals. There is a constant flow of water through this mouth. Travels two Yojanas per hour with the help of spirits of the 20^{th} class. Used in supplying water.

Ambaraasya Yantram

This machine appears like sky for those who look at it. Weighs 180 Ratals. Carries 2400 Ratals. Used in transporting elephants, camels, and so on. Travels 3 Yojanas per hour with the help of steam and electricity.

Sumukha Yantram

This machine presents a beautiful face of a crab. Weights 118 Ratals. Carries 1150 Ratals. Can travel with the help of spirits of the 14^{th} class, steam or electricity. Travels two Yojanas on land, four Yojanas in air, and three Yojanas in water, per hour. Used in traveling and transporting goods from place to place.

Thaaraamukha Yantram

The balls that are made out of the metal found where stars fall, are called Thaaraamanies. A machine which contains such balls is called Thaaraamukha Yantram. There are three big cylindrical pillars in it. There is another smaller machine inside this machine. The smaller machine contains some draavakas or acids, electricity, some glasses and so on. There are keys at the bottom of the three pillars, above named. By working the first key a brilliant light just like the rainbow will be produced. By working the second key a brilliancy light just like sun-light covered by clouds will be given out. By working the third key smoke will be issued out like dew. When this machine sails on sea, it can take the photos/pictures of all machines and animals that travel or stay both on and under the surface of the sea. Used in finding out objects that are both on and under the surface of the sea.

Manigarbha Yantram

This machine is round or circular in formation. Inside the machine there are balls called Souraka, Paavaka, and so on which attract the heat of solar rays. Weights 64 Ratals. Carries seventy thousand Ratals. Contains twelve faces to allow solar rays in. Travels three kroshas per hour with the help of the spirits of the third class. Used in traveling and attracting the heat of the sun-light.

Vahinee Yantram

This machine contains 16 keys and twelve metallic cylinders. Is 32 feet in height and 11 feet in circumference. Underneath there are 48 boring instruments. There are 96 wheels which throw off the mud dug. There are 22 keys which dig up rocks. There are twelve instruments sucking water up. This is a machine to be fixed in earth firmly. The water thus sucked up flows like streams. This machine can dig earth as far as 82 thousand feet deep. Used in digging earth and sucking water up.

Chakranga Yantram

This machine is modeled after a trap. There are wheels with stones throughout this machine. By turning one wheel plenty of wind blows out. By turning one wheel plenty of wind blows out. By turning another water flows down. In this way there are wheels by turning which fire, steam, poisonous gas, dew, power,

colors and so on are issued. By the turning of the wheels it travels two kroshas per hour. Used in many ways.

Chaitraka Yantram

This machine is modeled after a scorpion. There are 24 joints inside. There is a key at every joint. Every key is numbered and colored differently. Music, melodious instruments, conversation, photos and many other wonders will be produced according to the definite key that is pressed. Those who go near it to enjoy these wonders will be not only photographed of their appearance but also of their mind. Used in Bhedopaya or in conquering enemies of deceit.

Chanchupata Yantram

This machine is modeled after a bird with its mouth open. Contains four wings. There are five keys to each of these wings. Wires are to be connected to earth from its open mouth. As long as these wires extend in earth, so long the earth will have acquired a peculiar power by which people, if standing in this area will be benumbed. By working the keys attached to the wings the people who stand in the infected area will faint, or the earth will crack and so on, according to the work allotted to be done by the keys.

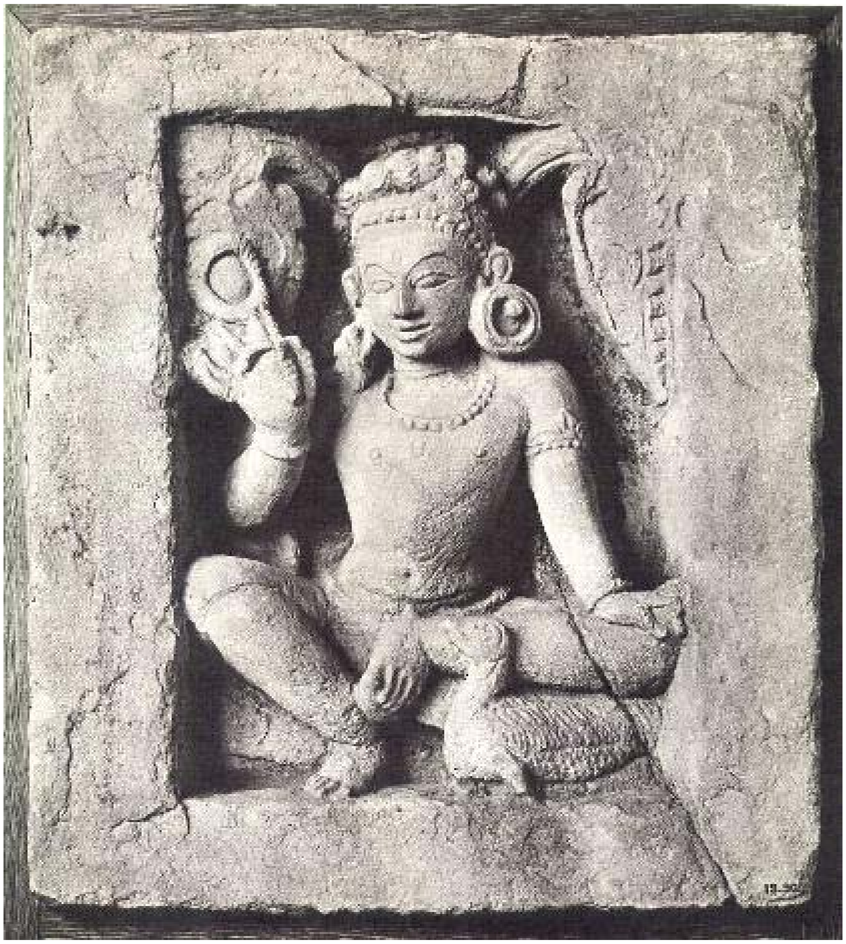
Pingaaksha Yantram

This is modeled after a litter.

Throughout the body of this machine it is full of green eyes. There is a button in every one of these eyes. This is to be firmly fixed on the summit of a mountain. It is 60 ft. long and 14 ft. in circumference. This is to be fixed in a town or city when it is surrounded by enemies. From this machine keys are arranged and fixed through wires underneath the surface of the earth to the extent of twenty-four miles, around the place. Inside the machine buttons are arranged and numbered for all these keys outside. By pressing the first button it will act upon the particular key and the gates of the fort will be shut. By pressing another the moats will get filled with water. In this way, by pressing the other buttons wonderful phenomena such as tremendous fumes of fire, floods of water, cyclones etc. will be created according to the defined work of each key. This machine is used in defending a city or country against strong enemies when offensive and defensive actions are at an end.

Puruhootha Yantram

This is modeled after a mrindanga, or musical instrument. It is 25 feet in height and as much in circumference. There is a machine called Shabda-sphota Yantra inside the machine. When the key is worked a tremendous noise bursts out equal to the simultaneous roar of 63 fierce lions. Used as per the nature of its work.



Ambareesga Yantram

This is modeled after an inverted earthen pot. 46 ft in height and 23 ft. in circumference. Contains keys resembling the feet of tortoise on all four sides. Travels in water 6 kroshas per hour with the help of Chakra Bhastrika. Used in finding the things on land under the surface of the seas and bringing them up.

Bhadraashwa Yantram

This is modeled after a horse. It possesses a tail of 38 ft. in length. Weighs 54 Ratals. It gallops like a horse with the help of spirits of 32^{nd} class. Possesses three horses' speed. At the top of there are three-faced keys. When it is set to work by the key it goes on galloping just like a horse in a circular way. Circles a distance of twelve Yojanas per hour. While in gallops, brilliant sparks of light will come out and destroy all dew or fog covering that area and clear the atmosphere. Used in places and times of dew, where and when the dew obstructs the view.

Virinchi Yantram

This is like a globe in appearance. Around it there are 32 wires of 80 ft long and 40 ft in circumference, both in front and back of the machine. There are three keys to these wires. By working the first key, it becomes loaded with powder and bullets. By working the second it gets ready to the aim. By working the third it fires. It rends the mountains asunder to an extent of 24 feet per shot. Used in constructing tunnels in mountains and rocks.

Kuladhar Yantram

This is modeled after a crow. Contains three beaks like those of crows. Inside there is machinery of electricity and so on. At the top there are keys resembling small snuff boxes in which round buttons are inserted. When this machine is fixed on rocks and set to work it expels with the help of its beaks, slabs of stone as per desired dimensions. Cuts out 22 ft. stone in an hour. It is used in cutting stones.

Balabhadra Yantram

This is modeled after an inverted metal boiler. 64 feet long and 16 feet wide. On either side there are 16 ploughs 16 ft by 4 ft. wide, fixed. Each plough contains two wings. At the beginning and end of them there are turning screws. Inside there is electricity or steam boiler. There are 24 keys above the machine. At the bottom of everyone of these keys are wheels. By the side there are 32 screws. As soon as they are pressed the machine goes on ploughing land. When the above 24 keys are set, the machine begins to run. Goes 3 Yojanas per hour. Ploughs an area of 3 Yojanas by 64 feet, per hour. The depth of the mud turned up in the land is 3 feet. Used in tilling the land.

Shaalmali Yantram

This machine is square in shape and white in color as of the flower of acaria Shireesha. At the top there are sixteen keys each intended for a definite work. By turning the first key, there appear a pair of hands the trunks of elephants and they can hold a weight of hundred Ratals. By working the second key that weight will be placed wherever necessary. The other keys are intended to carry up weights from deep water, and to arrange pieces of stone, timber or the like in or above water in constructing bridges or so. It can also bring down weights from a height of 200 feet.

Pushpak Yantram

This is crescent in formation. It is provided with many cradles suspended to it. There are 14 of them on each of the sideways and 8 in the middle, suspended. In those of the right hand side there are machines resembling pigs, while in those of the left wing there are sawing machines. In those of the middle there are screwed wheels suspended to chains. There are two wheels. This machine is to be in a place where timber is to be cut and sawn. If the first key of the upper wheel is turned, the above said pigs come down one by one. Bu working the second screw the pigs fall at the trunk of trees, beat them and cut them with tremendous noise and produce enormous quantity of smoke and fire. This fire spreads to the extent of 16 miles around, burns up all waste matter on land and clears the area. By the action of the fire on trees, the oil and so on will be extracted and stored up in bottles placed at the bottom of those trees. The heat of the fumes on the fire renders all the trees in that area soft like a plantain. The leaves of the trees fall down. By working the third key some more pigs come down and roam about that place exhaling tremendous breaths. Owing to this wind blown the ashes of that area will be swept off and the land cleared. In the same way, if the key on left side be turned, the saws from the cradles come down one by one. By turning the first screw of that wheel the saws will get themselves ready at the place. of the trees where they are to be sawn. By working the 3rd screw, the saws will go back to their cradles and from them pairs of hands like the trunks of elephants will come down. These pairs of hands will collect the pieces of timber that are sawn down. This machine weighs 180 Ratals. Can travel in forest with the help of steam power. It is a machine to be fixed to the earth. It can saw 3200 ratals of weight of timber per hour. Used in hewing and sawing timber in large quantities.

Ashtadla Yantram

This machine is modeled after a lotus containing 8 petals. Under each of these petals there will be an enclosure. In each of these enclosures. In each of these enclosures there will be the 8 things viz. smoke, electricity, water-vapor, air, Rushakam, Vishasaram, Manjusham and Katusaram which are described in Meghotpati Prakaranam. There is the key in the center of the lotus. In it there are eight screws for the 8 petals. By working any screw the things that are in the connected petal will go high above and form a cloud. By working the central key fumes like solar rays will be given out. As soon as the heat of these fumes acts upon those clouds formed before, they begin to rain. This machine is specialized to get rain.

Souryayana Yantram

This is like a pillar 116 feet high and 58 feet in circumference. At the top there is a sieve containing holes and made of glass of the 96th class called Somapa. From this sieve in this pillar there are twelve machines in order. Above the sieve there is a covering of 97th class of glass called Somasya Darpana. Above this covering there is a glass wheel called Kumudinee containing spokes made of 98th class of glass called Chandrika Darpana. In the twelve points of this machine there are twelve upper screws and twelve lower screws. Bu turning the first screw, the contents of the machine such as electricity, cold fluid, Shaitya Drava, Sudha Mushee, Soonruta,

Pushkalee, Pranada, Dravinaamrutha, Sooraneee, Jambaalee, Lulita, Vaachaklavee, Gacyoosha, rise up in the definite proportions. Through the cylindrical tubes which are fixed to the wheels of the sieve these powers pass and touch the glass covering above. By turning the electric screw then, the wheel turns 1192 rounds in a minute. Then a power called Someeya of the lunar rays is attracted by this wheel and it gets down through the sieve. Thus the power fills in the bottle below in the form of gas. It must be kept air-tight. Its use is this. When such limbs as head, hands, feet, of a person are cut off, the limbs are fixed to the right place of the body and the body kept in a box. The body must be wrapped in a covering of the bark of a plant called Vaarshneeka Valkala. When to such a body the above Somadrava gas is injuncted 5 Rajanikas, the body is resuscitated. This must be done within five minutes after the injury is done. Used in setting the cut limbs right, or resuscitating the persons killed, in the above manner.

Book used for this chapter

Diamonds, Mechanisms Weapons of War Yoga Sutras - By G. R. Josyer.

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Did You Know?

Kaliyugi Arjuna in Modern India



The tradition of ancient Indian archery is kept alive even today by a handful of display archers in the country. In the early years of the current century a famous archer from South India, nicknamed **Kaliyugi Arjuna**, shot a number of tigers and other wild beasts with his bow and arrows. Possessed of a powerful physique and an uncanny aim, he did great things with his favorite weapon, and for some time taught archery to the students of the Prem Maha Vidyalaya, Brindaban.

He could shoot four arrows simultaneously from the same bow and hit four difficult and different targets all at once. He made people put up spectacle frames fitted with silver rupees instead of glasses, which he shot down with two arrows of such an impeccably calculated force as to displace the little discs without injuring the man. He smeared exceedingly sharp arrow-tips with chalk dust and shot them at the bare backs of students with a perfect delicacy of control, so that they left only chalk marks on their tender targets without even grazing them. But he could also shoot powerful shafts that ripped through copper and iron plates. He could easily support a football in mid air for more than five minutes with a continuous shower of arrows. **Imprisoned for seditious activities during the first world war, under the British Rule, he died in jail.**

We have seen many of these feats repeated by another archer not many years ago. As well as performing many of the exploits of Kaliyugi Arjuna he could easily hit four thin sticks set upright in the ground at a fair distance with as many arrows discharged together from the bow. And he could also hit his target with his back turned to it, only seeing its reflection in a mirror.

In antiquity, when almost every able-bodied man tried to learn the use of the bow, the standard of archery must doubtless have been high, with not a few outstanding masters of the great weapon.

(source: **Ancient Indian Warfare with Special Reference to the Vedic Period - By Sarva Daman Singh** appendix).

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